



Insulating
Farm Buildings
with
CELOTEX

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Insulation

CONSTANT firing of the stove is needed in winter to keep the farm home warm because the heat is steadily escaping from the house into the outdoors. It escapes not only through open doorways but directly through the walls, windows and shingle roof.

Measurements show that heat passes through these different solids at different rates of speed. It goes very fast through iron. It goes very slowly through *insulation*.

Insulation, therefore, is distinguished from usual building materials, as a material which does not allow the rapid passage of heat. It retards this heat; holds it back. It makes this heat do extra duty in keeping the house warm.

This book explains *Celotex* insulation and what it means in the various kinds of buildings on your farm.

THE CELOTEX COMPANY

CHICAGO, ILLINOIS

Plant: New Orleans, La.

In Canada: Alexander Murray & Co., Ltd., Montreal

Sales Distributors throughout the world.

All reliable dealers can supply Celotex.

JOHN HINCKLEY & SON CO.
LUMBER AND BUILDING MATERIAL
YARMOUTHPORT, AND HYANNIS, MASS.

Making Farm Buildings Pay a Profit

A FEW men now living remember when the freshly populated plains west of the Mississippi were dotted with crude, misshapen, open front sheds made of loose boards, posts and layers of straw. These were the stables of the pioneer farmers who were to conquer the West. The best they could do, with lack of building materials and money, was to protect their cows, horses and poultry from rain and snow.

Shelter from rain and snow is only one consideration in farm building today. The farmer realizes that his buildings are part of his working plant, his "factory," and must help him make a profit from his land and his stock.

Consequently, no man builds more carefully to suit special needs than the farmer. His dairy cattle, hogs, poultry and stored produce each have separate buildings. These buildings are well constructed, well planned and kept in repair from year to year. Each building is furnished with specialized labor saving devices, ventilators and sanitary equipment.

Now these same buildings are taking on an added efficiency. They are being insulated.

This Insulation Idea

For years farmers have been combining stone, concrete, timber, lumber, shingles to make the best possible walls and roofs for their buildings. Unfortunately, these walls and roofs lacked the quality of insulation needed in farm buildings. Now, with Celotex available to every farmer this needed insulation is easily provided.

Insulation has a vital part to play in three major farm building problems. These are Warmth, Ventilation

and Condensation or "Sweating."

Warmth is of utmost importance. Since the dairy barn and poultry house are heated in winter only by the warmth that comes from the herd or flock, conservation of this heat is vitally necessary. There is not enough to waste. But waste of animal heat, with cold barns resulting, is exactly what happens in the case of ordinary construction, which allows animal heat to escape rapidly. Celotex Insulation added to the walls conserves this heat. The structure is kept at more comfortable temperatures all winter long.

Ventilation actually depends on heat, and the conservation of heat depends on insulation. This is natural because most ventilation systems rely solely on warm air rising through flues and carrying with it the foul gases and moisture. If inside temperature is low, due to heat-leaking walls and roof, the best ventilators will fail to work properly. Therefore the first requirement in ventilation is to maintain a relatively high inside temperature. Conservation of animal heat through insulation of the barn with Celotex is the most practical answer. So valuable is insulation in accomplishing this that leading manufacturers of ventilating equipment are urging the insulation of every building that must be ventilated.

Third on the list of farm building problems is condensation of moisture on walls and ceilings in winter. Two causes are involved here. One is a poorly working ventilating system which does not carry off wet, breathed air. Another is cold walls and ceiling on which the moisture condenses. This condition is the bane of every good farmer. It rots timbers, molds feed and hay, rusts iron and steel

equipment. In fact condensed moisture has only one virtue. It is an indicator of an immediate need for insulation and better ventilation. Watch for it. Then prevent it. Use Celotex.

These factors of warmth, ventilation and condensation have an equally important part in the operation of vegetable and fruit storage houses. Temperature control day in and day out will insure the success of the storage venture. Freezing weather, hot weather, extreme dryness or extreme dampness may ruin the whole crop. Insulation is a funda-

mental need in the building and operation of storage houses.

Celotex can be built into your dairy barn, poultry house, brooder, vegetable storage house, in fact any structure at any time, when it is first erected or later. Every building already in use can be insulated with Celotex. It is only necessary to apply the broad strong boards direct to the framework or finished walls. If stone or concrete walls must be insulated, a nailing base of 2 x 4's can be set against the walls to hold the Celotex. In new structures, Celotex replaces wood sheathing.

*Thus you can see that insulation built into structures
makes them better protectors of stock and produce
—and therefore more sure to return a profit
on the money invested.*



This modern barn was insulated with Celotex, which was used on the interior side of the walls. Wood barns are also insulated with Celotex. In this case it is used as sheathing. Many farmers insulate their present barns by nailing Celotex to the inside of the wall studs and the bottom of joists or rafters.

Protect Your Stock and Make More Money

FARMING is a business. Farm buildings are a part of the business investment. Like factory buildings, they must pay dividends on the money invested in them. Otherwise, the result is a poor paying farm.

It was this understanding of buildings that raised the American farmer rapidly from straw shed pioneer days to specialized, well equipped structures. It is the same reason that decides hundreds of farmers each week to use insulation.

Protect Laying Hens

Probably no building will waste more money for the farmer than a poorly built laying house. Every poultry owner who has watched egg production drop when a cold snap swoops down on it can testify to this. The same flock, same feed, same degree of health. Only the laying house temperature changed. That is enough to cause a marked drop in egg production throughout the north-central and eastern portions of the United States each winter.

Farmers are combating this condition by insulating with Celotex. The result is a more productive, healthier flock. The building begins to pay dividends on its investment.

The reason is simple. Warm houses are necessary for good egg production in winter. Celotex in walls and roofs keeps the house warm, shuts out cold drafts.

The insulated laying house is a profit maker in another sense. It keeps the flock in better physical condition than is ever possible with drafty, cold shacks. The insulated house is not only warm, it is dry and where efficient ventilators are installed, the air is fresh and clean. Therefore the vitality of the flock is

kept at a high peak. If disease does appear in one or two birds it does not spread rapidly. (It has been observed for instance, that roup will run through a flock kept in a wet, cold house before the birds first infected really warn the owner of the disease.) The laying flock is a big investment on any farm and must be kept warm and dry. Let Celotex insulation help you.

In Brooders

Brooders are as important to the farmer as the laying house, especially with the present tendency to hatch chicks early in the season. Records show that brood losses have run as high as 50 per cent in many cases. This could easily wipe out all the profit for the whole year.

Cold brooders are generally accountable for such losses. Celotex built into your brooder will go a long way toward protecting from cold and drafts; and stopping the average high mortality among your chicks. The Celotex brooder is more economical to operate, because stove heat is not wasted by heat-leaking walls and roof. In addition, when the brooder is built completely of Celotex it is light to handle when moving to fresh ground.

Poultry owners who hatch their eggs, should insulate their hatchery room. This will protect the newly hatched chicks from a sharp change in temperature when they are taken from the incubator. Remember! Chicks that do not live to become pullets are an outright loss. Avoid this waste. The best insurance is Celotex Insulation.

Battery brooders of modern type for use in raising broilers also need to be insulated with Celotex, to protect the birds and keep down heating costs.

Winter in the Dairy Barn

When snow surrounds the dairy barn it is time for the farmer to check up on the way the barn is protecting cattle. Does the air become stagnant? Do walls and ceilings grow damp with moisture? Does the temperature within the barn sink to the freezing point early in the morning? These conditions can be checked by observation and an ordinary thermometer.

If they exist, it is certain that the herd is not as comfortable as it should be. Milk production is sure to dimin-

ish. There is danger that the vitality of the cows will be lowered and disease will get a foothold. Winter weather creeping into your dairy barn is an impediment to efficient operation.

Celotex Insulation on walls and ceiling keeps winter out of the barn. Feed is not wasted in the production of extra body heat. It can continue to be used for milk. A warm barn helps ventilation, helps keep the air clean and dry; a distinct protection to the health of the herd. Celotex Insulation also means comfort to the men working around the herd.

If your stock is to pay you a good income for twelve months every year, it must be protected from winter cold. Use Celotex!



Animal heat is not wasted in this dairy barn because Celotex was used to make interior walls and ceiling. The result is a more comfortable barn, better ventilation and no condensation. This same method of insulating can be used in poultry houses, brooders or storage houses.

Storing for Profit

THE STORING of crops, except for family use, is a business venture. In simplest terms, the farmer holds his crops off the market from time of harvest until some future date. Often this storage season lasts into the winter months. Obviously one of the first considerations in the storage house must be protection from freezing.

Protect your stored crops with Celotex Insulation. Celotex on walls and roof will hold out destroying frost.

Other factors of successful fruit and vegetable storage point to the need of Celotex Insulation. One is control of temperature no matter the weather out of doors. Another is control of ventilation. Another is control of moisture. Insulation that will enable the farmer to control the atmosphere in his storage house independent of

outside weather conditions is the prime essential of successful storage.

Other advantages of Celotex help the farmer who is planning to build a storage. One is the economy of being able to use Celotex for both insulation and siding. This keeps down the cost of construction. Another advantage is the adaptability of Celotex in rebuilding old structures. Celotex can be used to convert old barns or other buildings into storage houses.

There are special problems in connection with the storing of different products — apples, potatoes, onions, etc. The Celotex Company has pamphlets and folders showing plans and suggestions for building several types of storage houses. You will find these listed on the last page. Get them from your dealer, or write to The Celotex Company direct. Address the Farm Department.



This farmer used the bottom of his barn and Celotex Insulation to build an efficient vegetable storage. Celotex was used on all walls and the ceiling. You can build a storage house this way.

Other Buildings

THE ADVANTAGES of all-purpose Celotex Insulation is never more clearly proven than in its use by farmers in almost every sort of structure. In some of these miscellaneous farm buildings its insulation qualities rank first in importance. Examples are: Garage, Ice House, Milk House, Home-made Refrigerator, Pump Shed, Seed House, Out House and Hot Beds.

Celotex in the garage keeps the car from freezing and oil from becoming stiff. In the milk house Celotex is particularly valuable on hot summer days. By keeping out sun heat it prevents the cooling tank from heating up and helps chill the milk in the shortest possible time. Best of all, you do not have to tear down your present buildings and build new ones to get

the advantages of Celotex Insulation. It can be built into your present structures.

In other cases the "workability" of Celotex, the ease with which it can be handled, its strength, stiffness and weather resisting qualities cause the farmer to use it where insulation is a minor feature. Examples are: Implement Sheds, Lambing Sheds, Roadside Market Stands, Tool Houses, Cook Shacks, Work Shops and general repair work. In these cases the builder uses Celotex just like wood lumber.

Plans for some of these structures have been prepared and can be secured from our local dealer or, you can get them from us. See the last page of this pamphlet.



One source of farm income is the roadside stand. This one was built with Celotex. You can use Celotex in almost every building job on your farm. It is light to haul; easy to saw and nail.

Comfort in the Heart of the Farm

AT THE close of a tiring day in the fields and at the barns there is a world of relief in the comfort of the farm home. It takes you away from a busy, workaday world; it gives you new things to think of, brings pleasure and comfort.

Today the farm home can be made even more comfortable than has been possible in the past because of the growth of an idea. This idea is Celotex Insulation; extra protection for the family against cold of winter and excessive heat of summer.

In years past, this protection could be had for the home only at excessive expense; because insulation was then an extra, high priced item in building. While it saved fuel, it made the house cost more to build. Celotex was invented and developed to remove this extra cost of insulation. Celotex can actually be used as a structural part of the home, such as sheathing. Every farm home, whether in the process of building or planning or already built, can now afford this extra comfort.

For Your New Home

Celotex can be used in your new home as wall sheathing, roof insulation, under plaster and under the floor. Celotex under the floor is particularly advantageous when no cellar is dug.

As sheathing, Celotex prevents the rapid waste of heat through the walls of the house. Used in the roof, Celotex stops waste of heat that rises from rooms below and ordinarily escapes rapidly without warming the attic or top floor rooms. Celotex Lath used under plaster instead of wood lath insure better looking interior walls plus extra insulation. Celotex nailed under or over the

rough floor boards will prevent cold floors in winter.

Just as Celotex Insulation keeps costly stove heat *in* during the winter, it keeps excessive heat *out* when hot weather comes. Insulation holds back the passage of heat either way. The insulated farm home is cooler in summer, gives a double return in comfort. Celotex protection in summer is particularly noticeable in top floor sleeping rooms.

There are no complicated rules to follow in using Celotex in your new home. It is nailed direct to framing members just like wood lumber. In fact, it replaces ordinary wall sheathing and wood lath. That explains the first money saving economy in using Celotex. It is not an extra item.

The most important economy in Celotex is fuel saving in winter. You do not have to fire the stove furiously in zero weather to keep warm in the insulated house. The heat stays *inside* the house where you want it. There is less work; less expense for fuel. The safety factor must not be overlooked. With no need for overheating the stove to keep warm, there is less danger of fires.

In Your Present Home

Some of the advantages of Celotex Insulation can be had in your present home.

You can insulate the most vital part of your house, the roof, by applying Celotex on top of the present shingles or to the under side of roof rafters. It can be nailed over the shingles if a new roof is laid over the Celotex. If you apply Celotex on the underside of roof rafters you will secure the same protection and will have a finished attic in addition.

Many attics lined with Celotex are used for extra sleeping quarters, living rooms, playrooms or sewing rooms. The Celotex will prevent the attic from becoming stifling hot in summer. This extra space turned to good use at no extra cost represents a third saving to the farm owner.

Celotex can also be used to enclose the porches, making them available for use in the coldest months. Ordinary

open porches have been transformed into pleasant sun rooms, adding space, light and cheerfulness to the home. If you are planning to remodel your whole house, Celotex can be nailed to the present siding before the new siding is applied.

If you have some special insulation problem in connection with your home, visit our local dealer or write direct to us.

Use Celotex in your present home, or your new one, to gain more comfort, save fuel, make extra rooms.



One way to gain insulation in your home is to install Celotex in the attic. By nailing it to the under side of roof rafters from peak to eaves, insulation of the roof is accomplished. Once the attic is insulated it is warmer in winter and cooler in summer. Therefore the attic can be used for extra rooms. Here is shown a bedroom and a boys' playroom in attics insulated with Celotex.

What Celotex Is!

IN 1921 a small group of men succeeded in a long search for a material basically perfect for the manufacture of an insulating board which would not be an extra item in building, could be priced low enough for all and could be installed in old buildings as well as new. Scores of materials were tested and discarded. Wood and vegetable fibres and minerals of various sorts were tried time and again. None of these suited the searchers.

But eventually they found bagasse, or cane fibre, after a world-wide hunt. Bagasse could be had in large quantities on the sugar farms of our own South. A board made from it fitted all needed requirements . . . high insulating value, economy, strength, durability when exposed to weather, lightness.

Why It Insulates

In 1921 the first Celotex machine went into operation. The first full year of operation totalled only 12 million square feet. Yet so successful has Celotex been that in 1928 public demand had forced production up to 400 million square feet.

There is no mystery to the insulation value of Celotex. Celotex boards contain thousands of tiny, sealed cells per cubic inch, the basis of insulation. These insulating air cells are permanent. There is no wasting away of insulating value in Celotex. It does not have to be replaced.

Neither is there any mystery as to how much insulating value Celotex has. Insulating value can be measured as carefully as you measure the length of a board. Only engineers use the British Thermal Unit instead of feet and inches. The B. t. u. has been established as the quantity of heat required to raise one pound of water one degree Fahrenheit. Taking this unit, engineers have established the

measurement of insulating value as the number of B. t. u.'s that will pass through a piece of given material one foot square and one inch thick, per hour, per degree difference in temperature between the two sides. This measure gives the Conductivity or insulating value of any material. In other words, Conductivity is the rate of speed at which heat will pass through a given material.

Good Insulation

A small Conductivity means high insulating value. Independent laboratories have determined the average conductivity of Celotex as 0.33. Compare this with conductivities of 2.32 for gypsum plaster, 3.04 for plaster board and 1.30 for oak wood. Expressed in other terms, Celotex has 3 times the insulating value of wood, 8 times plaster board, 12 times brick and 25 times concrete. Thus you can see that the insulating value of Celotex is much more than other building materials.

In addition to its insulating air cells each cane fibre has rough, saw-toothed edges. As the board is made these rough edges interlock and the fibers cling together with remarkable tenacity. Thus stiffness and strength is built into each piece of Celotex. Another strength factor every farmer must consider comes from the size of Celotex boards. They are so broad and long that they give greater bracing strength than ordinary sheathing. The unbroken sheet of Celotex, reaching from sill to plate and across three studs, means diagonal bracing from each nail to every other nail. This means that walls built of Celotex are strong. They will withstand wind stresses.

Other Qualities

Celotex has other qualities which the farmer-carpenter must not over-

look. It is durable when painted and exposed to weather: so it can be used on exteriors. It is light to handle and haul, weighing only 60 pounds per 100 square feet. This is only 19 pounds for one eight-foot board. Celotex comes in broad perfect boards: no knot holes or cracks, and therefore no waste. It is softer than wood lumber: easy to saw and nail. During manufacture the fibers of Celotex are thoroughly sterilized. There is no extraneous matter which might attract vermin, or decay and annoy the household or affect stored fruit.

Celotex is not an extra item in new building. It can be used in place of wood sheathing or siding. It can be used in old buildings, by applying directly over present framework or finished walls.

Kinds of Celotex

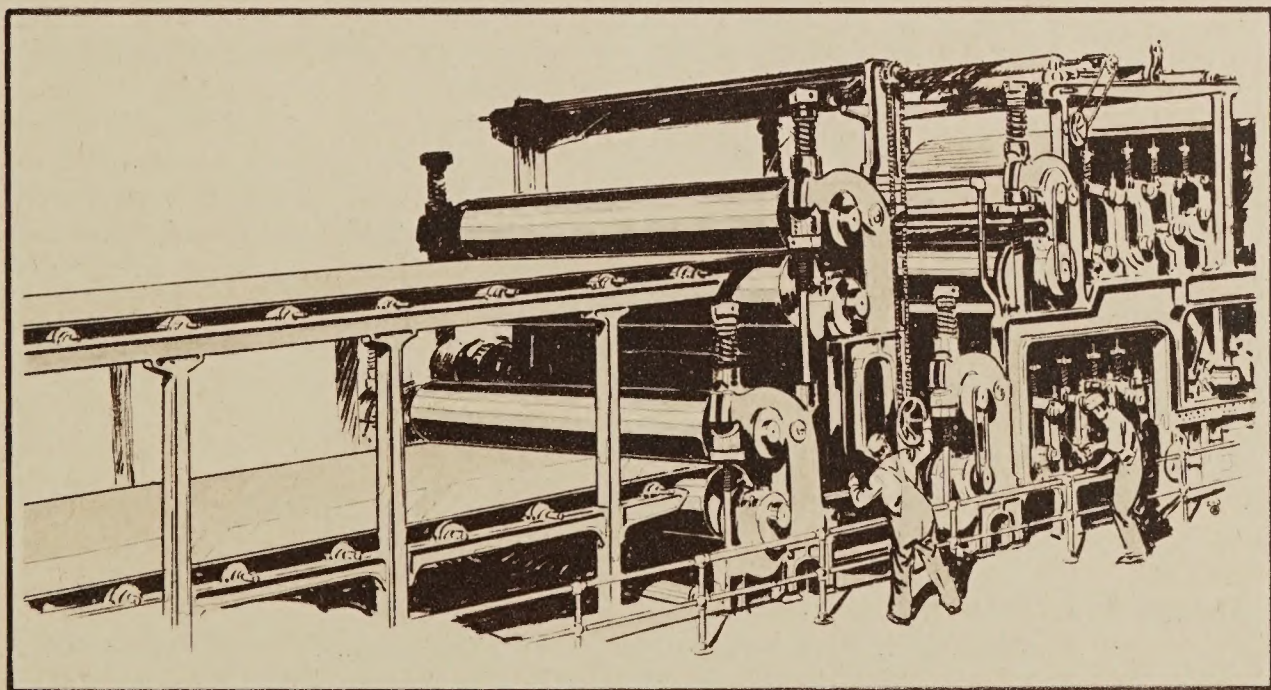
Two forms of Celotex are available to the farmer. One is Celotex Standard Building Board, $\frac{7}{16}$ in. and $\frac{7}{8}$ in. thick, 4 ft. wide, 7 to 12 ft. long. This is used as wall and roof sheathing, floor insulation, interior and exterior

finish. Another form of Celotex is Celotex Lath, $\frac{7}{16}$ in. and $\frac{7}{8}$ in. thick, 18 in. wide and 48 in. long. Celotex Lath is an insulating plaster base, scientifically designed to reinforce the plaster at the joints to insure a better plastered wall and ceiling. It is used extensively for lining attics.

Other products of The Celotex Company are: Celotex Carpet Lining, Celotex Linoleum Base, Acousti-Celotex, Celotex Industrial Insulation Board, Celotex Roof Insulation Board, Celotex Refrigerator Insulation Board and Hard Panel Board.

Celotex Standard Building Board and Celotex Lath are carried in stock by reliable dealers throughout the United States and Canada. These dealers are always ready to help you insulate your present buildings or those you are planning to build. They are ready to make delivery on short notice. If there are some special problems you wish The Celotex Company to help you with, address our Farm Department. There is no obligation or charge of any kind involved.

Insulation with Celotex is the most practical improvement you can make this year. It can bring you more profits and more comforts than you have known in the past.



One of the Celotex machines in the plant at New Orleans.

Celotex Service Information

CERTAIN phases of the use of Celotex insulation on the farm deserve special attention, in order that the farmer builder can get the best service from his building. Just as different farm plant buildings need different machinery equipment, so these same buildings need slightly different applications of Celotex. Below are listed Celotex Service Information booklets, plans or leaflets that will help the farmer carpenter. They are free. Get them at your dealer's office or write us direct.

GENERAL

Application of Celotex Standard Building Board and Celotex Lath

Complete specifications on the use of these two products. Needed by architects, contractors and practical carpenters.

PLANS

Laying House (No. 102)

Complete blueprints, directions and bill of materials, Size 20 ft. long by 18 ft. wide. Shows layout for perches, nests and ventilators.

Backyard Brooder and Laying House (No. 103)

Length 18 ft., width 12 ft. Brooder pen 8 ft. by 12 ft. holds 300 to 450 chicks. Laying house 10 ft. by 12 ft. holds 25 to 35 birds. Complete directions and plans.

Brooder House (No. 100)

Built on skids. Length 12 ft., width 8 ft. Gives details of construction and blueprints.

Milk House (No. 500)

This plan includes a one-room and a three-room house. Shows details of cooling tank, ventilator, etc. Three-room blueprints include boiler, wash and milk room.

"A" Type Hog House (No. 300)

This farrowing house is built so hogs can not rub against the Celotex. Built on skids. Complete blueprints and bill of materials.

Ice House (No. 400)

Size: 10 ft. wide by 16 ft. long, outside dimensions. Capacity about 25 tons. Complete instructions.

Roadside Market (No. 600)

A pleasing, easily built roadside stand. Width 4 ft., length 8 ft. Complete blueprints.

Garage (No. 201)

This includes plans for one or two car garage. One car garage is 12 ft. wide and 16 ft. long. Can be made larger by duplicating one section of the wall. Bill of materials for each garage.

Celotex Service Information—Continued

LEAFLETS

Celotex Insulation in the Dairy Barn (800)

Includes map of temperature zones of the U. S. with explanation. Shows method of insulating various types of walls with Celotex. Gives insulating values of these walls. Also shows frame wall insulation and values. Valuable to poultry and fruit storage operator as well as dairyman.

Onion Storage (702)

Gives complete instructions and drawings for construction of Celotex insulated onion storage with capacity of 10,000 bushels.

Apple Storage House, Air Cooled (701)

Complete directions, plans and bill of materials for an insulated air cooled apple storage house of 8,000 bushels capacity.

Sweet Potato Storage House (700)

Drawings and instructions, including ventilating and heating. Gives measurements for houses of 500, 2000 and 12,000 bushel capacity.

A Celotex Refrigerator (801)

Directions and complete drawings for several sizes of refrigerators which the handy man can make.

The word

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Chicago, Illinois

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